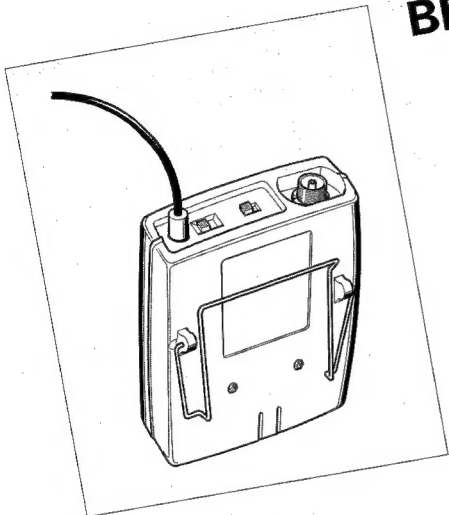




## BF 1053 VHF



### KURZBESCHREIBUNG

Der Sender BF 1053 ist ein speziell auf die drahtlose Mikrofon-Übertragung ausgelegter Taschensender im VHF-Bereich. Das mitgelieferte Ansteckmikrofon MKE 2-1053 wird aus dem Sender mit Strom versorgt. Am Sender läßt sich die Mikrofonempfindlichkeit umschalten, um verzerrungs- und rauschfrei zu arbeiten.

### MERKMALE

- kompakt und bedienfreundlich
- zwei Kanäle umschaltbar
- Lizenzierung in allen wesentlichen Märkten
- Empfindlichkeitsschalter für den Mikrofoneingang
- einfacher Betrieb mit 9-Volt-Block
- 8 Stunden Betriebszeit mit Alkali-Mangan-Batterie
- 120 dB Geräuschspannungsabstand

### BRIEF DESCRIPTION

The BF 1053 transmitter is a pocket-format unit for cordless transmission of microphone signals in the VHF band. The enclosed MKE 2-1053 clip-on microphone receives its power supply from the transmitter unit, which is also equipped with a microphone sensitivity switch for minimizing noise and distortion.

### FEATURES

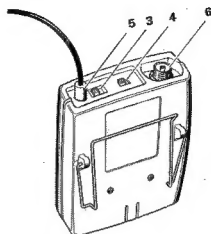
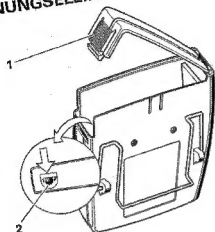
- compact unit with convenient controls
- selection of two channels
- licensed in all major markets
- microphone input sensitivity switch
- simple operation with 9-volt compound battery
- 8 hours operating time with alkaline-manganese battery
- 120 dB signal-to-noise ratio

BF 1053 VHF  
11/04-1

<b>INHALTSVERZEICHNIS</b>	<b>SEITE</b>
<b>1. BEDIENTUNGSELEMENTE</b>	<b>3</b>
<b>2. TECHNISCHE DATEN</b>	<b>3</b>
<b>3. ALLGEMEINES</b>	<b>5</b>
3.1. INHALT DER SERVICE-ANLEITUNG	
3.2. SERVICE-KONZEPT	
<b>4. SERVICE HINWEISE</b>	<b>6</b>
4.1. ALLGEMEINES	
4.2. DEMONTAGE	
4.3. FEHLERSUCHE	
<b>5. FEHLERSUCHE</b>	<b>7</b>
5.1. MESSAUFBAU I	
<b>6. MESSGERÄTE UND PRÜFMITTEL</b>	<b>8</b>
<b>7. MESSAUFBAU II</b>	<b>8</b>
<b>8. PRÜF- UND ABGLEICHANLEITUNG</b>	<b>9</b>
<b>9. BLOCKSCHALTBILD</b>	<b>11</b>
<b>10. STROMLAUPLÄNE</b>	<b>12</b>
10.1. BF 1053 VHF, NF-TEIL	
10.2. BF 1053 VHF, HF-TEIL	
<b>11. GEDRUCKTE SCHALTUNG</b>	<b>14</b>
11.1. BF 1053 VHF, BESTÜCKUNGSSEITE	
11.2. BF 1053 VHF, LÖTSEITE	
11.3. BF 1053 VHF, BESTÜCKUNGSVARIANTEN	
<b>12. EXPLOSIONSZEICHNUNG</b>	<b>17</b>
<b>13. ERSATZTEILE</b>	<b>18</b>

<b>CONTENTS</b>	<b>PAGE</b>
<b>1. OPERATING ELEMENTS</b>	<b>4</b>
<b>2. TECHNICAL DATA</b>	<b>4</b>
<b>3. GENERAL</b>	<b>5</b>
3.1. CONTENTS OF THIS SERVICE MANUAL	
3.2. SERVICE CONCEPT	
<b>4. SERVICE HINTS</b>	<b>6</b>
4.1. GENERAL	
4.2. DISASSEMBLY	
4.3. TROUBLESHOOTING	
<b>5. TROUBLESHOOTING</b>	<b>7</b>
5.1. TEST SET-UP I	
<b>6. SPECIAL TOOLS AND EQUIPMENT</b>	<b>8</b>
<b>7. TEST SET-UP II</b>	<b>8</b>
<b>8. TEST AND ALIGNMENT PROCEDURE</b>	<b>10</b>
<b>9. BLOCK DIAGRAM</b>	<b>11</b>
<b>10. CIRCUIT DIAGRAMS</b>	<b>12</b>
10.1. BF 1053 VHF, AF SECTION	
10.2. BF 1053 VHF, RF SECTION	
<b>11. PRINTED CIRCUIT BOARD</b>	<b>14</b>
11.1. BF 1053 VHF, COMPONENT SIDE	
11.2. BF 1053 VHF, SOLDER SIDE	
11.3. BF 1053 VHF, VARIABLE COMPONENTS	
<b>12. EXPLODED VIEW</b>	<b>17</b>
<b>13. SPARE PARTS</b>	<b>18</b>

## 1. BEDIENUNGSELEMENTE



- 1 Batteriefach
- 2 Kanalwählschalter
- 3 Ein / Aus - Schalter
- 4 Schaltbare Mikrophonempfindlichkeit
- 5 Antennenanschlussbuchse
- 6 Mikrofonanschlussbuchse

## 2. TECHNISCHE DATEN

### HF-TEIL

Frequenzaufbereitung  
Trägerfrequenz  
Schaltbandbreite  
Kanalrester  
Frequenzstabilität  
Sendeleistung / Abgestrahlte Leistung  
Störstrahlungsleistung  
Modulationsart  
Nennhub / Spitzenhub bei 1 kHz

### NF-TEIL

Frequenzgang (+2 / -3 dB)  
Geräuschspannungsabstand  
NF-Empfindlichkeit für Nennhub (0 dB / -20 dB)  
Spitzenaussteuerung (0 dB / -20 dB)  
Eingangswiderstand  
Einstellumfang des Empfindlichkeitsschalters  
Trittschallfilter Roll-Off (Eckfrequenz 80 Hz)  
High-Cut Roll-Off  
Klirrfaktor  
Preemphasie  
Rausch- und Störunterdrückungssystem

### STROMVERSORGUNG, MECHANIK

Batterie-  
Betriebszeit  
Stromaufnahme bei Nennspannung  
Betriebsspannungsbereich  
Abmessungen in mm  
Gewicht

### MIKROFON MIKE 2-1053

Richtcharakteristik  
Grenzschalldruckpegel  
Kabellänge  
Abmessungen  
Steckverbinder

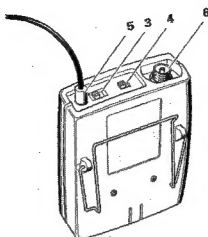
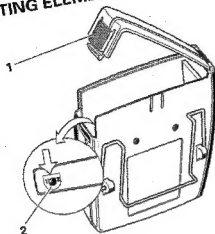
PLL (Phase-Lock-Loop)-Synthesizer  
138 - 260 MHz (6 Bereiche)  
ca. 8% der Bereichsmittenfrequenz  
2 Kanäle, umschaltbar  
> 5 kHz  
besser  $\pm 10$  kHz (-10 bis +55 °C, UB = 5,6 - 10,0 V)  
max. 50 mW / 10 mW  
< 4 nW  
FM, Breitband  
 $\pm 40$  kHz /  $\pm 56$  kHz

80 - 18000 Hz  
120 dB (A)  
110 / 850 mV  
0,35 / 2,6 V  
5 k $\Omega$   
20 dB  
18 dB / Okt.  
24 dB / Okt.  
< 1 % bei Spitzenhub, < 0,3 % bei Nennhub  
50  $\mu$ s  
HiDynamus

IEC 6 LR 61 9 V, Alkaline (keine NiCd-Akkus verwenden!)  
bis zu 8 Stunden Dauerbetrieb möglich  
45 mA  
5,6 - 10,0 V  
100 x 38 x 73  
ca. 130 g incl. Batterie

Kugel  
130 dB bei 1 kHz (K = 1%)  
1,5 m  
 $\varnothing$  6 mm  
LEMO koaxial

## 1. OPERATING ELEMENTS



- 1 Battery compartment
- 2 Channel selector switch
- 3 On / off switch
- 4 Sensitivity switch
- 5 Antenna socket
- 6 Microphone socket

## 2. TECHNICAL DATA

### RF SECTION

Frequency generation  
Carrier frequency  
Switching bandwidth  
Channels  
Channel grid  
Frequency stability  
Transmitting output power / radiated power  
Spurious emissions  
Modulation  
Nominal deviation / peak deviation at 1 kHz

### AF SECTION

Frequency response range (+2 / -3 dB)  
Signal-to-noise ratio  
AF input sensitivity for nominal deviation (0 dB / -20 dB)  
max. AF input voltage for peak deviation (0 dB / -20 dB)  
Input impedance  
Control range of sensitivity switch  
Roll off filter (Cut-off frequency 80 Hz)  
High-Cut Roll-Off  
THD at 1 kHz  
Preemphasis  
Compander

### POWER SUPPLY

Battery  
Operating time  
Current consumption for rated voltage  
Operating voltage  
Dimensions in mm  
Weight

### MICROPHONE MKE 2-1053

Directivity  
Sensitivity  
Cord length  
Dimensions  
Plug jack

BF 1053 VHF  
11/94 - 4

PLL (Phase Locked Loop) synthesizer  
136 - 260 MHz (6 ranges)  
approx. 8 % of the range center frequency  
2, switchable  
> 5 kHz  
< ±10 kHz (-10 to +55 °C, UB = 5.6 - 10.0 V)  
max. 50 mW / 10 mW  
< 4 nW  
FM, wideband  
± 40 kHz / ± 56 kHz

80 - 18,000 Hz  
120 dB (A)  
110 / 850 mV  
0.35 / 2.6 V  
5 kΩ  
20 dB  
-18 dB / Oct.  
-24 dB / Oct.  
< 1% for peak dev., < 0.3 % for nominal dev.  
50 μs  
HiDynplus

IEC 6 LR 61 9 V, alkaline (do not use NiCd batteries!)  
up to 8 hrs (continuous operation)  
45 mA  
5.6 - 10.0 V  
100 x 38 x 73  
approx. 130 g incl. battery

omnidirectional  
130 dB at 1 kHz (K = 1%)  
1.5 m  
diameter 6 mm  
LEMO coaxial

## 3. ALLGEMEINES

### 3.1. INHALT DER SERVICE-ANLEITUNG

Eine Reparatur kann durch Leiterplattentausch vorgenommen werden. Diese Form der Reparatur hat sich in der Praxis bewährt und begrenzt das notwendige Funktionsverständnis auf die Leiterplatten.

Auf geeigneten Meßplätzen kann die Reparatur der Leiterplatten bis auf Bauteilebene erfolgen. Detaillierte Reparaturanleitungen befinden sich in den Service-Hinweisen und der Prüf- und Abgleitanleitung.

Die Service-Anleitung vermittelt das entsprechende Wissen zur Fehlerlokalisierung und Reparatur des BF 1053 VHF.

### 3.2. SERVICE-KONZEPT

#### 3.2.1. Leiterplatte

Die Leiterplatte des BF 1053 VHF ist als 2-seitig kupferkaschierte Platine aufgebaut und kann durch einen unsachgemäßen Reparaturversuch irreparabel beschädigt werden.

#### 3.2.2. Service-Anleitung

Die Service-Anleitung soll dem Techniker die Möglichkeit bieten, die wichtigsten Reparatur- und Abgleicharbeiten ausführen zu können.

Die Service-Anleitung kann im Bedarfsfall auch dem Kunden ausgehändigt werden.

#### 3.2.3. SMD (Surface Mounted Devices)

Die Leiterplatte des BF 1053 VHF sind weitgehend mit Chip-Elementen (SMD) bestückt. Sollte beim Hantieren mit den Baugruppen ein SMD mechanisch zerstört werden, ist es erforderlich, dieses Bauelement zu ersetzen.

SMD werden direkt auf die dafür vorgesehenen Lötflächen gelötet. Hierfür besitzen sie lötfähige Stimmkontaktierungen, die weitgehend hitzeunempfindlich sind.

Zum Auswechseln ist folgendes Werkzeug erforderlich: Neben einer Pinzette und einem normalen temperaturgeregelten Lötkeilen (z. B. Weller mit 0,8 mm Flachkopflötspitze PT-H 7 oder 0,8 mm Langkopflötspitze PT-K 7) sollten noch ein absolut rückschlagfreies Absauggerät und 1,2 mm Entlötlitze vorhanden sein. Sinnvoll ist eine Arbeitslupe.

Die Lötzeit ist so kurz wie möglich zu halten, damit die Leiterbahnen nicht beschädigt werden. Besonders beim Auslöten der Bauteile ist darauf zu achten, daß die Leiterbahnen nicht abgehoben werden. Danach ist die Auflagefläche der Bauteile von Lötresten zu säubern. Um mechanische Spannungen in den Bauteilen zu vermeiden, sollte man erst nach dem Erkalten der ersten Lötstelle die gegenüberliegende Seite anlöten.

Eine Wiederverwendung eines bereits ausgelöteten Chip-Bauelementes ist nicht zulässig. Dies gilt auch dann, wenn es offensichtlich fehlerfrei ist, da durch die mechanische Beanspruchung beim Ein- und Auslöten eine Beschädigung nicht ausgeschlossen werden kann.

Die SMD werden als Ersatzteile in Packeinheiten von je 50 Stück geliefert. Die Lagerbehälter müssen verwechslungssicher gekennzeichnet sein, da nur dadurch eine Unterscheidung der Bauteile möglich ist.

## 3. GENERAL

### 3.1. CONTENTS OF THIS SERVICE MANUAL

Practical experience gained from corrective maintenance shows that it is best to repair the unit by replacing defective PCBs. This type of repair has proven to be good in practical use as it spares the service engineer the effort to learn all details on the unit's complex circuit design.

Special tools and test equipment allow the modules to be easily repaired up to the lowest level, i.e., their individual components. Detailed instructions are given in the service hints as well as in the test and alignment instructions.

The present service manual shall provide the service engineer with important information required to find faults and to repair the BF 1053 VHF.

### 3.2. SERVICE CONCEPT

#### 3.2.1. Printed circuit board

The PCB incorporated into the BF 1053 VHF is a double-sided printed circuit board which can be accidentally damaged through improper handling or repair.

#### 3.2.2. Service manuals

The present document shall help the service engineer to accomplish the most important maintenance and repair work.

The service manual may be handed to customers, if need be.

#### 3.2.3. SMD (Surface Mounted Devices)

The PCBs incorporated into the BF 1053 VHF chiefly include Surface Mounted Devices (SMD). Should one SMD be accidentally damaged, replace the defective component with a new one.

SMDs are to be soldered to the surface provided for this purpose. They feature solderable contacts which are relatively insensitive to heat.

Tools required to replace SMDs: tweezers, temperature-controlled soldering iron (e.g. Weller with 0.8 mm flat headed soldering tip PT-H 7 or 0.8 mm oblong soldering tip PT-K 7), blow-back proof unsoldering set, 1.2 mm unsoldering wire. It is recommendable to use magnifying glasses.

Minimize the soldering time in order not to damage the PCB. Be careful not to damage any tracks when unsoldering the components to be replaced. Clean the surface. Wait until the first soldered joint has cooled down before starting to solder the opposite side. This serves to avoid stress built-up in the components.

Do not reuse unsoldered components, even if they seem to be faultless. Mechanical damage, possibly caused by soldering or unsoldering some components, cannot be excluded.

SMDs are available as spare parts, 50 pcs. packaged in a poly bag. Containers or packages should be marked in order to make the components distinguishable from each other.

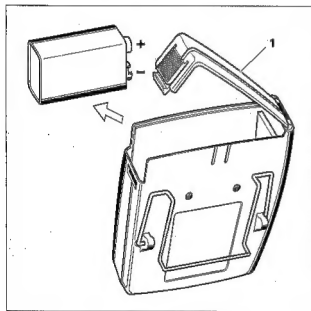
## 4. SERVICE HINWEISE

### 4.1. ALLGEMEINES

Je nach Bestückung der frequenzabhängigen Bauelemente ist der Taschensender BF 1053 VHF in 6 Bereichen des VHF-Bandes einsetzbar (siehe Tabelle "Frequenzbereiche" auf Seite 16). Die Auswahl der Kanalfrequenzen ergibt sich durch die Wahl des PROM - Bausteins U3 und den Widerständen R95, R96, R97, R98 und R99 (siehe Tabelle "Kanalfrequenzen" auf Seite 16).

### 4.2. DEMONTAGE:

- Taschensender BF 1053 VHF ausschalten.
- Mikrofonstecker lösen und entnehmen.
- Antennenstecker lösen und entnehmen.
- Batteriefach (1) öffnen und Batterie entnehmen.
- Schrauben (2) lösen und entnehmen.
- Ringmutter und Zahnscheibe (3) mit Spezielschlüssel (Ersatzteilnummer 50607) lösen und entnehmen.
- Leiterplatte aus Gehäuse schieben.



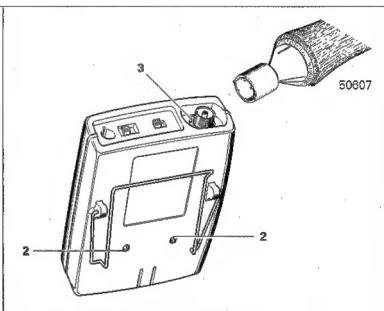
## 4. SERVICE HINTS

### 4.1. GENERAL

The BF 1053 VHF pocket transmitter is available in 6 ranges in the VHF band range (please see table "Frequency ranges" on page 16). The channel frequencies can be selected by choice of PROM circuit U3 and resistors R95, R96, R97, R98 and R99 (please see table "Channel frequencies" on page 16).

### 4.2. DISASSEMBLY:

- Switch pocket transmitter BF 1053 VHF to "OFF".
- Disconnect the microphone plug.
- Disconnect the antenna plug.
- Open the battery compartment (1) and remove battery.
- Unscrew the screws (2).
- Unscrew ring nut and tooth lock washer (3) with special tool (Spare part number 50607).
- Slide the PCB out of the transmitter housing.



### 4.3. FEHLERSUCHE

- Taschensender BF 1053 VHF besprechen und mit Empfänger BFR 1051 (Kopfhörer) abhören. Funktionsüberprüfung mit anschließendem Abklopfen und Reichweitentest.
- Taschensender BF 1053 VHF demontieren.
- Die Fehlersuche beim BF 1053 VHF unterteilt sich in:
  - Überprüfen der Testpunkte TP 1 - TP 21 auf der Bestückungsseite der Leiterplatte. Dazu Verfahren wie im Abschnitt "FEHLERSUCHE" auf Seite 7. Bei stark abweichenden Meßwerten Leiterplatte unter Zuhilfenahme des Stromlaufplanes reparieren.
  - Durchführen der "PRÜF- UND ABGLEICHANWEISUNG".
- Taschensender BF 1053 VHF montieren.
- Taschensender BF 1053 VHF besprechen und mit Empfänger BFR 1051 (Kopfhörer) abhören. Funktionsüberprüfung mit anschließendem Abklopfen und Reichweitentest.

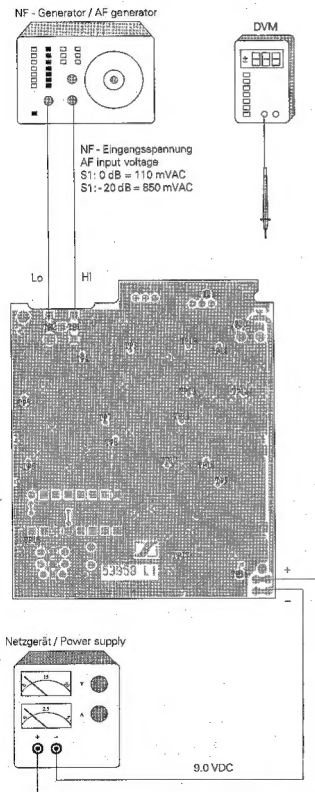
### 4.3. TROUBLESHOOTING

- Speak into the BF 1053 VHF pocket transmitter microphone and monitor the correct working of the system with the help of the BFR 1051 receiver (headphones). Performance test, incl. subsequent tapping and transmission range tests.
- Disassemble the BF 1053 VHF pocket transmitter.
- Troubleshooting procedures:
  - Check test points TP 1 - TP 21 on the component side of the PCB. Proceed as described in "TROUBLESHOOTING" on page 7. For deviating test results, the PCB is to be repaired with the help of the circuit diagram.
  - Follow the "TEST AND ALIGNMENT PROCEDURES".
- Assemble the BF 1053 VHF pocket transmitter.
- Speak into the BF 1053 VHF pocket transmitter microphone and monitor the correct working of the system with the help of the BFR 1051 receiver (headphones). Performance test, incl. subsequent tapping and transmission range tests.

## 5. FEHLERSUCHE

### 5.1. MESSAUFBAU I

- NF-Signal (1kHz) an TP 1 einspeisen (TP 2  $\perp$ ).
- Betriebsspannung (9,0 V) an Batteriekontakte anlegen.
- Ein / Aus Schalter S6 in Stellung "ON" bringen.
- Kanalwahlschalter S5 in Stellung "1" bringen.
- Testpunkte mit Voltmeter ( $R_i \geq 1 \text{ M}\Omega / \text{V}$ ) überprüfen.



## 5. TROUBLESHOOTING

### 5.1. TEST SET-UP I

- Input the AF (1kHz) via TP 1 (TP 2  $\perp$ ).
- Apply the operating voltage (9.0 V) to the battery contacts.
- Set the ON/OFF switch S6 to "ON".
- Set the channel selector switch S5 to "1".
- Check the test points using the voltmeter ( $R_i \geq 1 \text{ M}\Omega / \text{V}$ ).

Testpunkt Test point	Sollwert (DC) Desired value (DC)	Sollwert (NF effektiv) Desired value (AF eff.)
TP 1	0.0 VDC	S1: 0 dB = 110 mVAC S1: -20 dB = 850 mVAC
TP 2	0.0 VDC	0.0 VAC
TP 3	9.5 VDC	107 mVAC
TP 4	3.9 VDC	715 mVAC
TP 5	4.0 VDC	775 mVAC
TP 6	3.7 VDC	815 mVAC
TP 7	0.0 VDC	0.0 VAC
TP 8	3.2 VDC	810 mVAC
TP 9	7.9 VDC	0.0 VAC
TP 10	4.25 VDC	0.0 VAC
TP 11	4.8 VDC	0.0 VAC
TP 12	0.5 VDC	0.0 VAC
TP 13	9.0 VDC	0.0 VAC
TP 14	0.6 VDC	0.0 VAC
TP 15	0.0 VDC	0.0 VAC
TP 16	2.2 $\pm$ 1.2 VDC	0.0 VAC
TP 17	5.5 VDC	0.0 VAC
TP 18	8.2 VDC	0.0 VAC
TP 19	10.6 VDC	0.0 VAC
TP 20	0.0 VDC	0.0 VAC
TP 21	9.0 VDC	0.0 VAC

## 6. MESSGERÄTE UND PRÜFMITTEL

- 1 Modulationsanalysator (z.B. Rohde & Schwarz FAM)
- 1 NF-Signalgenerator (z.B. Leader LAG 126 S)
- 1 NF-Millivoltmeter (z.B. UPM 550 - 1)
- 1 HF-Millivoltmeter (z.B. Rohde & Schwarz)
- 1 HiDyn Expander II (z.B. Sennheiser Ident.-Nr. 49556)
- 1 Oszilloskop (z.B. Hameg 605)
- 1 Voltmeter  $R_i \geq 1 \text{ M}\Omega / \text{V}$  (z. B. Thandar TM 351)
- 1 Amperemeter (z.B. Thandar TM 351)
- 1 Netzgerät 0 - 30 V / 2 A

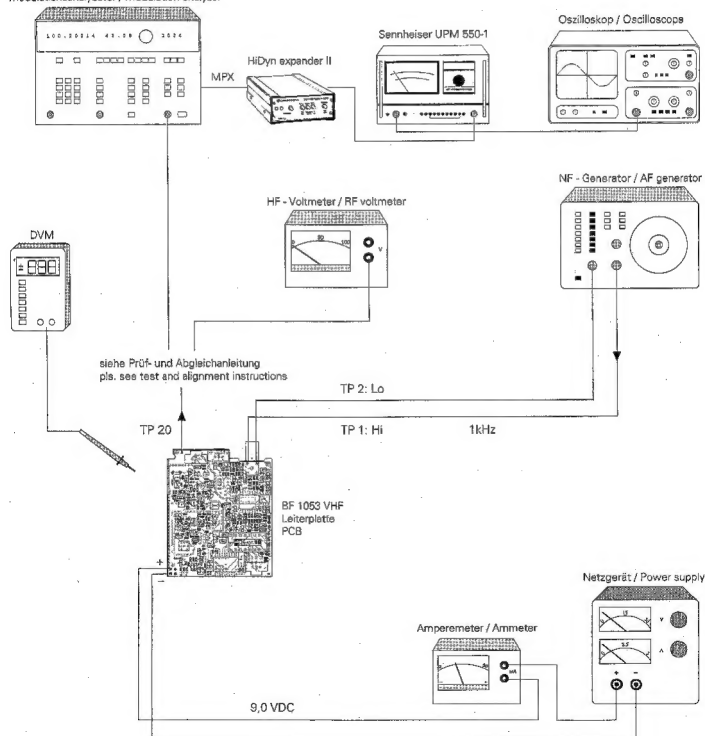
## 6. SPECIAL TOOLS AND EQUIPMENT

- 1 Modulation analyzer (e.g. Rohde & Schwarz FAM)
- 1 AF signal generator (e.g. Leader LAG 126 S)
- 1 AF millivoltmeter (e.g. UPM 550 - 1)
- 1 RF millivoltmeter (e.g. Rohde & Schwarz)
- 1 HiDyn expander II (e.g. Sennheiser Ident. No. 49556)
- 1 Oscilloscope (e.g. Hameg 605)
- 1 Voltmeter  $R_i \geq 1 \text{ M}\Omega / \text{V}$  (e.g. Thandar TM 351)
- 1 Ammeter (e.g. Thandar TM 351)
- 1 Power supply 0 to 30 V / 2 A

## 7. MESSAUFBAU II

## 7. TEST SET-UP II

Modulationsanalysator / Modulation analyzer



## 8. PRÜF - UND ABGLEICHANWEISUNG

Nach jedem Betätigen des Kanalwahlschalters S5 ist der Sender durch Aus - und Einschalten rückzusetzen!

Nr.	Messung, Einstellung	Signal-einspeisung	Vorbereitung, Geräteeinstellung	Meßpunkt	Sollwert	Einsteller	Bemerkungen
1	Störstrahlung	KF-Signal 1 kHz 850 mV an TP 2 einpassen (TP 2 an Meßschraubf.)	Batteriespannung 9,6 V Wahltransmissionen einstellen AGC-Schalter S6 100% Kanalwahlschalter S5 1 Empfindlichkeit S1 40 dB	Ampere empf.	40 - 50 mA		
2	HF - Pegel	wie 1.	HF - Voltmeter	TP 20	1,1 - 1,8 Veff an 50 $\Omega$		
3	Sendefrequenz Kanal	wie 1.	Modulationsanalysator	TP 20	$f \pm 4$ kHz		
3.1	Sendefrequenz Kanal 2	wie 1.	Kanalwahlschalter S5 "2"; Modulationsanalysator	TP 20	$f \pm 4$ kHz		
4	VCO Abstimmstrahlung	wie 1.	Kanalwahlschalter S5 "1" SD-Voltmeter	TP 10	$f \pm 1,2$ kHz		
5	Nennhub	wie 1.	Modulationsanalysator	TP 20	$\pm 40$ kHz	R56	
5.1	Nennhub	NF - Signal 500 mV sonst wie 1.	Empfindlichkeit S1 10 dB; Modulationsanalysator	TP 20	$f \pm 5$ kHz		
6	NF - Frequenzgang	NF - Signal 5 mV, sonst wie 1.	Empfindlichkeit S1 -20 dB; UPM 550 - 1 Anzeige auf 0 dB eichen	TP 20			
6.1	NF - Frequenzgang	NF - Signal 5 mV; sonst wie 1.	UPM 550	TP 20	-3 dB		
6.2	NF - Frequenzgang	NF - Signal 10 kHz, sonst wie 1.	UPM 550 - 1	TP 20	0 dB ... -1,5 dB		
6.3	NF - Frequenzgang	NF - Signal 10 kHz; sonst wie 1.	UPM 550	TP 20	-3 dB		
7	Klirrfaktor	wie 1.	UPM 550 - 1	TP 20	typ. 0,3 %		
8	Endkontrolle		Frequenzhub 1000 kHz modulieren Agc. bedim. mod. Frequenz schalter betätigen nachstellen mit Empfänger BF 1053 VHF prüfen				

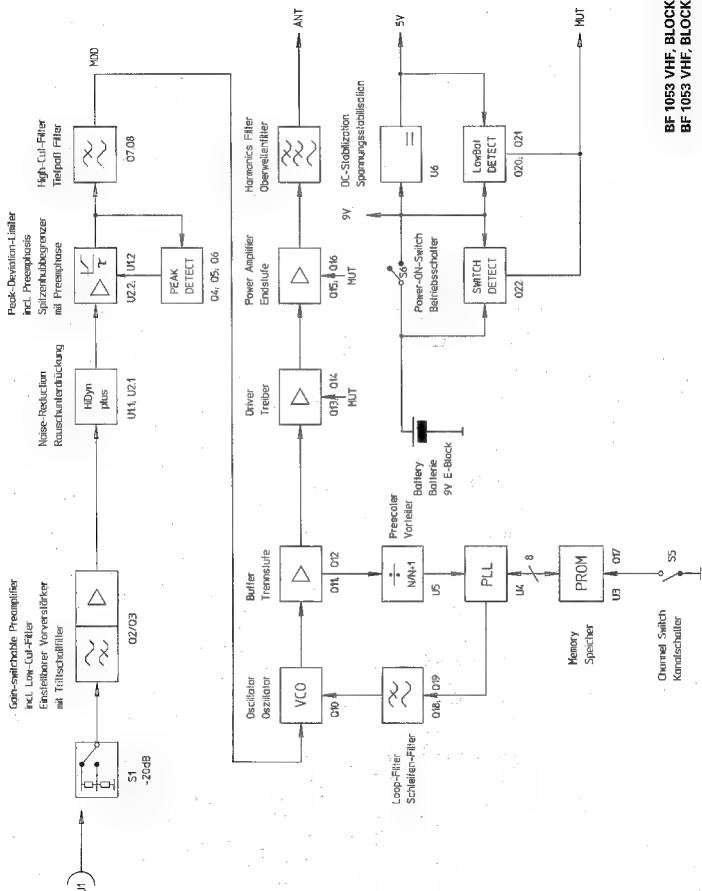
### NOTIZEN:

## 8. TEST AND ALIGNMENT INSTRUCTIONS

After switching the channel selector switch S5 please reset the transmitter by switching off and on the unit!

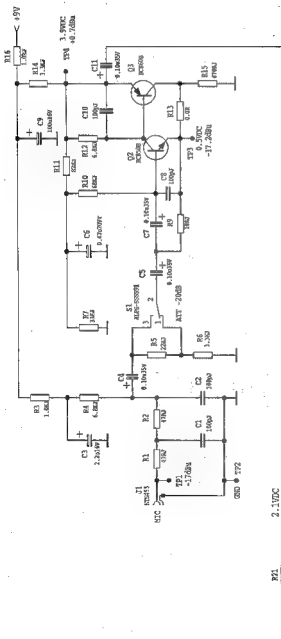
No.	Measurement, adjustment	Signal input	Preparations, settings	Test point	Desired value	Adjuster	Remarks
1	Current consumption	Input 100 kHz, 10 mV; 850 mV; via TP 2; 0 dB; see test setup	Apply the operating voltage; set the channel selector switch S5 to 1; channel selector S5 1; sensitivity S1 ~ 20 dB	Ammeter	40 - 80 mA		
2	RF level	as 1.	RF voltmeter	TP 20	1.1 - 1.6 Veff 50 Ω loaded		
3	Transmit frequency channel	as 1.	Modulation analyzer	TP 20	f ± 4 kHz		
3.1	Transmit frequency channel 2	as 1.	Channel selector S5 "2"; modulation analyzer	TP 20	f ± 4 kHz		
4	VCO tuning voltage	as 1.	Channel selector S5 "1"; voltmeter	TP 10	2.4 ± 0.2 V		
5	Nominal deviation	as 1.	Modulation analyzer	TP 20	± 40 kHz	R56	
5.1	Peak deviation	Audio signal 500 mV, proceed as described in step 5.	Sensitivity switch S1 10 dB; modulation analyzer	TP 20	± 56 kHz		
6	Audio frequency response	Audio signal 5 mV, proceed as described in step 1.	Sensitivity switch S1 ~ 20 dB; calibrate UPM 550 - 1 (0 dB)	TP 20			
6.1	Audio frequency response	Audio signal 50 mV, proceed as described in step 6.	UPM 550 - 1	TP 20	0 dB		
6.2	Audio frequency response	Audio signal 10 kHz, proceed as described in step 6.	UPM 550 - 1	TP 20	0 dB ... - 1.5 dB		
6.3	Audio frequency response	Audio signal 8 kHz, proceed as described in step 6.	UPM 550 - 1	TP 20	- 3 dB		
7	THD	as 1.	UPM 550 - 1	TP 20	typ. 0.3 %		
8	Performance test		Assemble the BF 1053 VHF. After the transmitter has been completely assembled it has to be checked for correct working using a BFR 1051 receiver.				

### NOTES:

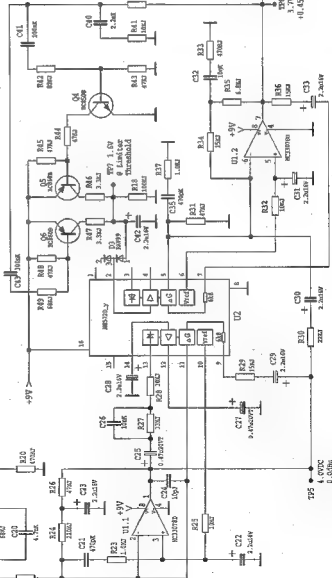


BF 1053 VHF, BLOCKSCHALTBIOD  
BF 1053 VHF, BLOCK DIAGRAM

# Mic-Preamplifier with Low-Cut



Remark: All audio levels given at 1kHz AF and Alt-switch "Off" for nominal deviation of 40kHz! (0dBu = 775mV)

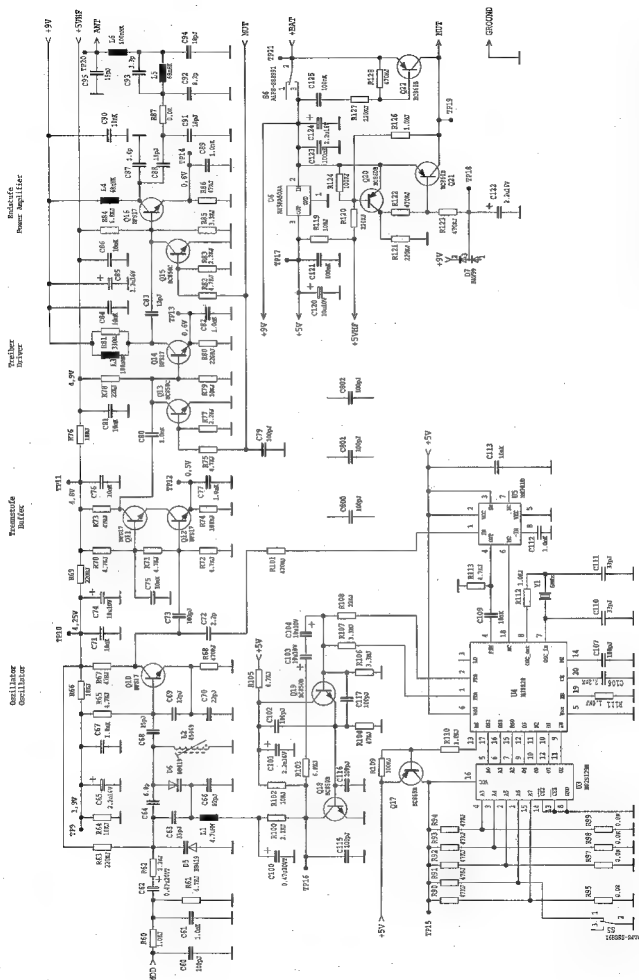


VCA

Compressor

Preamplifier/Peak-Limiter

Lowpass

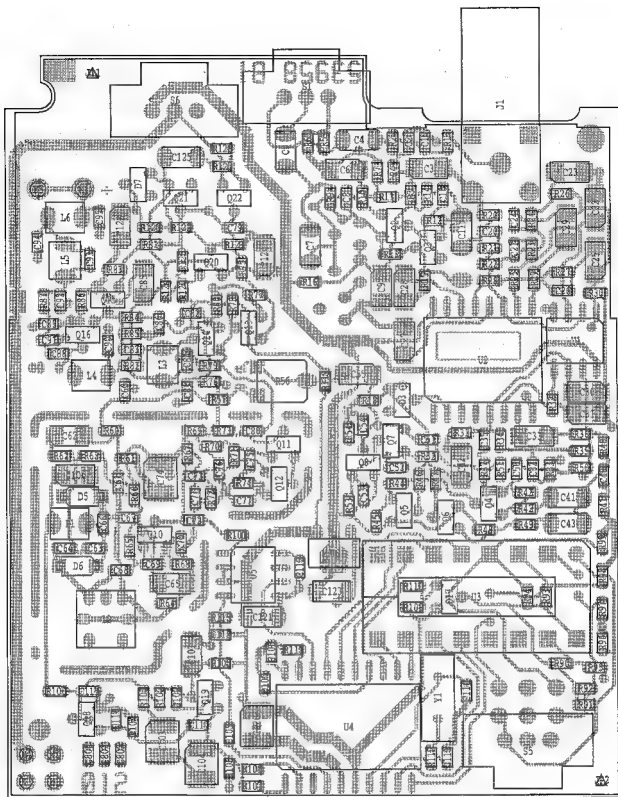


BF 1053 VHF, HF-TEIL, STROMLAUFPLAN  
BF 1053 VHF, RF SECTION, CIRCUIT DIAGRAM

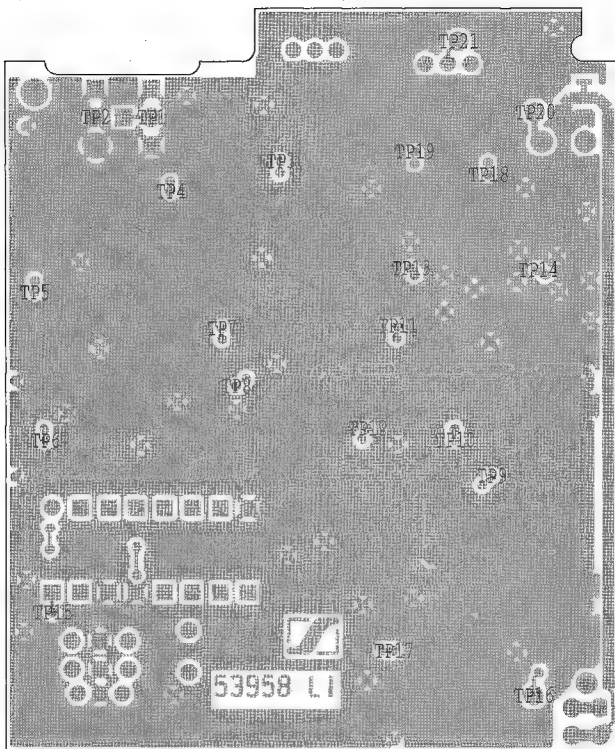
ML Legit

100

Channel Switch



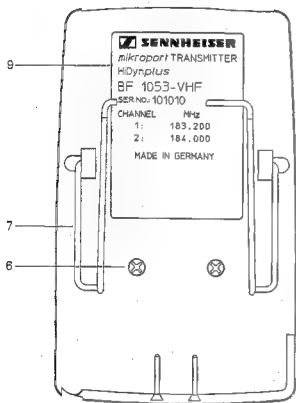
**BF 1053 VHF, GEDRUCKTE SCHALTUNG, BESTÜCKUNGSSEITE**  
**BF 1053 VHF, PRINTED CIRCUIT BOARD, COMPONENT SIDE**



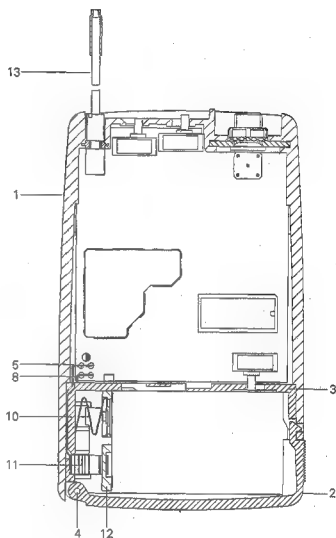
BF 1053 VHF, GEDRUCKTE SCHALTUNG, LÖTSEITE  
 BF 1053 VHF, PRINTED CIRCUIT BOARD, SOLDER SIDE



## 12. EXPLOSIONSZEICHNUNG



## 12. EXPLODED VIEW



## 13. ERSATZTEILE

## 13. SPARE PARTS

POS	IDENT	BEZEICHNUNG	DESCRIPTION
001	52818	Gehäuse "SE-POWER-ATT"	Housing "SE-POWER-ATT"
002	52828	Batterieklappe	Cover for battery compartment
003	52826	Chassis	Chassis
004	53059	Zylinderstift	Straight pin
005	52822	Kontaktfeder	Contact spring
006	17718	Blechschräube St2,2x6,5 DIN7981 (MOQ:10x)	Sheet metal screw St2.2x6.5 DIN7981 (MOQ:10x)
007	43965	Klammer	Clip
008	52820	Kontaktfeder	Contact spring
009	53438	Schild	Label
010	60383	Kontaktfeder komplett	Contact spring complete
011	20728	Kontaktfeder	Contact spring
012	21689	Kontaktfeder	Contact spring
013A	54179	Antenne 132-144MHz 460mm	Antenna 132-144MHz 460mm
013B	54180	Antenne 169-200MHz 330mm	Antenna 169-200MHz 300mm
013C	54181	Antenne 199-260MHz 260mm	Antenna 199-260MHz 260mm
AA001	40095	IC PROM 1Kx4 N62S129N	IC PROM 1Kx4 N62S129N
C001	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C002	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C003	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C004	45066	SMD Kondensator TA-KO 100nF 35V (MOQ:50x)	SMD capacitor TA-KO 100nF 35V (MOQ:50x)
C005	45066	SMD Kondensator TA-KO 100nF 35V (MOQ:50x)	SMD capacitor TA-KO 100nF 35V (MOQ:50x)
C006	45060	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C007	45066	SMD Kondensator TA-KO 100nF 35V (MOQ:50x)	SMD capacitor TA-KO 100nF 35V (MOQ:50x)
C008	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C009	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C010	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C011	45066	SMD Kondensator TA-KO 100nF 35V (MOQ:50x)	SMD capacitor TA-KO 100nF 35V (MOQ:50x)
C020	45199	SMD Kondensator KERKO 4,7nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 4.7nF 50V X7R (MOQ:50x)
C021	45193	SMD Kondensator KERKO 470pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 470pF 50V X7R (MOQ:50x)
C022	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C023	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C024	45174	SMD Kondensator KERKO 10pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 10pF 50V NPO (MOQ:50x)
C025	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C026	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C027	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C028	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C029	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C030	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C031	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C032	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C033	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C035	45193	SMD Kondensator KERKO 470pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 470pF 50V X7R (MOQ:50x)
C040	45197	SMD Kondensator KERKO 2,2nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 2.2nF 50V X7R (MOQ:50x)
C041	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C042	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C043	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C050	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C051	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C052	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C053	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C054	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C055	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C060	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C061	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C062	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C063A	45181	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C063B	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C063C	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x)
C063D	45173	SMD Kondensator KERKO 8,2pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 8.2pF 50V NPO (MOQ:50x)
C063E	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x)
C064A	45173	SMD Kondensator KERKO 8,2pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 8.2pF 50V NPO (MOQ:50x)
C064B	45172	SMD Kondensator KERKO 6,8pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 6.8pF 50V NPO (MOQ:50x)
C064C	45170	SMD Kondensator KERKO 4,7pF 50V NPO KEFQ (MOQ:50x)	SMD capacitor KERKO 4.7pF 50V NPO KEFQ (MOQ:50x)

POS	IDENT	BEZEICHNUNG	DESCRIPTION
C064D	45188	SMD Kondensator KERKO 3,3pF 50V NPO (MOQ:50x) 199-217,234-260 MHz	SMD capacitor KERKO 3.3pF 50V NPO (MOQ:50x) 199-217,234-260 MHz
C064E	45189	SMD Kondensator KERKO 3,9pF 50V NPO (MOQ:50x) 216-235 MHz	SMD capacitor KERKO 3.9pF 50V NPO (MOQ:50x) 216-235 MHz
C065	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C066A	45184	SMD Kondensator KERKO 68pF 50V NPO (MOQ:50x) 132-144 MHz	SMD capacitor KERKO 68pF 50V NPO (MOQ:50x) 132-144 MHz
C066B	45185	SMD Kondensator KERKO 82pF 50V NPO (MOQ:50x) 169-184,216-235 MHz	SMD capacitor KERKO 82pF 50V NPO (MOQ:50x) 169-184,216-235 MHz
C066C	45182	SMD Kondensator KERKO 47pF 50V NPO (MOQ:50x) 183-200,234-260 MHz	SMD capacitor KERKO 47pF 50V NPO (MOQ:50x) 183-200,234-260 MHz
C066D	45179	SMD Kondensator KERKO 27pF 50V NPO (MOQ:50x) 199-217 MHz	SMD capacitor KERKO 27pF 50V NPO (MOQ:50x) 199-217 MHz
C067	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C068A	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x) 132-144, 169-184 MHz	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x) 132-144, 169-184 MHz
C068B	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 183-260 MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 183-260 MHz
C069	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x)
C070A	45176	SMD Kondensator KERKO 22pF 50V NPO (MOQ:50x) 132-144,169-184 MHz	SMD capacitor KERKO 22pF 50V NPO (MOQ:50x) 132-144,169-184 MHz
C070B	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 183-260 MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 183-260 MHz
C071	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C072	45186	SMD Kondensator KERKO 2,2pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 2.2pF 50V NPO (MOQ:50x)
C073	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C074	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C075	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C076	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C077	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C079	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C080	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C081	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C082	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C083A	45181	SMD Kondensator KERKO 39pF 50V NPO (MOQ:50x) 132-144 MHz	SMD capacitor KERKO 39pF 50V NPO (MOQ:50x) 132-144 MHz
C083B	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 169-184 MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 169-184 MHz
C083C	45179	SMD Kondensator KERKO 27pF 50V NPO (MOQ:50x) 183-200 MHz	SMD capacitor KERKO 27pF 50V NPO (MOQ:50x) 183-200 MHz
C083D	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 199-217 MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 199-217 MHz
C083E	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x) 216-235 MHz	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x) 216-235 MHz
C083F	45178	SMD Kondensator KERKO 22pF 50V NPO (MOQ:50x) 234-260 MHz	SMD capacitor KERKO 22pF 50V NPO (MOQ:50x) 234-260 MHz
C084	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C085	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C086	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C088A	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 132-144 MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 132-144 MHz
C088B	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x) 169-184,199-217 MHz	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x) 169-184,199-217 MHz
C088C	45174	SMD Kondensator KERKO 10pF 50V NPO (MOQ:50x) 183-200,216-235 MHz	SMD capacitor KERKO 10pF 50V NPO (MOQ:50x) 183-200,216-235 MHz
C088D	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 234-260 MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 234-260 MHz
C089	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C090	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C091A	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x) 132-144,183-200,216-235 MHz	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x) 132-144,183-200,216-235 MHz
C091B	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 169-184 MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 169-184 MHz
C091C	45178	SMD Kondensator KERKO 22pF 50V NPO (MOQ:50x) 199-217,234-260 MHz	SMD capacitor KERKO 22pF 50V NPO (MOQ:50x) 199-217,234-260 MHz
C092A	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x) 132-144 MHz	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x) 132-144 MHz
C092B	45173	SMD Kondensator KERKO 8,2pF 50V NPO (MOQ:50x) 169-184 MHz	SMD capacitor KERKO 8.2pF 50V NPO (MOQ:50x) 169-184 MHz
C092C	45171	SMD Kondensator KERKO 5,6pF 50V NPO (MOQ:50x) 183-200,234-260 MHz	SMD capacitor KERKO 5.6pF 50V NPO (MOQ:50x) 183-200,234-260 MHz
C092D	45168	SMD Kondensator KERKO 3,3pF 50V NPO (MOQ:50x) 199-217 MHz	SMD capacitor KERKO 3.3pF 50V NPO (MOQ:50x) 199-217 MHz

POS	IDENT	BEZEICHNUNG	DESCRIPTION
C092E	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 216-235 MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 216-235 MHz
C093A	45168	SMD Kondensator KERKO 3,3pF 50V NPO (MOQ:50x) 132-144,169-184 MHz	SMD capacitor KERKO 3.3pF 50V NPO (MOQ:50x) 132-144,169-184 MHz
C093B	45167	SMD Kondensator KERKO 2,7pF 50V NPO (MOQ:50x) 183-200,216-235 MHz	SMD capacitor KERKO 2.7pF 50V NPO (MOQ:50x) 183-200,216-235 MHz
C093C	45166	SMD Kondensator KERKO 2,2pF 50V NPO (MOQ:50x) 199-217,234-260 MHz	SMD capacitor KERKO 2.2pF 50V NPO (MOQ:50x) 199-217,234-260 MHz
C094A	45178	SMD Kondensator KERKO 22pF 50V NPO (MOQ:50x) 132-144 MHz	SMD capacitor KERKO 22pF 50V NPO (MOQ:50x) 132-144 MHz
C094B	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 169-184 MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 169-184 MHz
C094C	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x) 183-200,216-260 MHz	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x) 183-200,216-260 MHz
C094D	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 199-217 MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 199-217 MHz
C095A	45178	SMD Kondensator KERKO 22pF 50V NPO (MOQ:50x) 132-144 MHz	SMD capacitor KERKO 22pF 50V NPO (MOQ:50x) 132-144 MHz
C095B	45176	SMD Kondensator KERKO 15pF 50V NPO (MOQ:50x) 169-184,234-260 MHz	SMD capacitor KERKO 15pF 50V NPO (MOQ:50x) 169-184,234-260 MHz
C095C	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 183-200 MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 183-200 MHz
C095D	45174	SMD Kondensator KERKO 10pF 50V NPO (MOQ:50x) 199-217 MHz	SMD capacitor KERKO 10pF 50V NPO (MOQ:50x) 199-217 MHz
C095E	45173	SMD Kondensator KERKO 8,2pF 50V NPO (MOQ:50x) 216-235 MHz	SMD capacitor KERKO 8.2pF 50V NPO (MOQ:50x) 216-235 MHz
C100	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C101	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C102	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C103	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C104	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C106	45197	SMD Kondensator KERKO 2,2nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 2.2nF 50V X7R (MOQ:50x)
C107	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C109	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C110	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C111	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C112	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C113	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C115	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C116	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C117	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C120	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C121	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C122	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C123	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C124	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C125	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C900	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x) 169-184,199-217,234-260 MHz	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x) 169-184,199-217,234-260 MHz
C901	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x) 132-144,169-200,234-260 MHz	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x) 132-144,169-200,234-260 MHz
C902	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x) 169-235 MHz	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x) 169-235 MHz
D003	32642	SMD Doppel diode BAV99 SOT23	SMD diodes (two) BAV99 SOT23
D005	45304	SMD Varicap BB419 SOD123	SMD Varicap BB419 SOT123
D006	45304	SMD Varicap BB419 SOD123	SMD Varicap BB419 SOT123
D007	32642	SMD Doppel diode BAV99 SOT23	SMD diodes (two) BAV99 SOT23
J001	45613	Buchse, Coax/Lemo	Socket, coax/lemo
L001	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L002A	45617	SMD HF-Spule SUMIDA CS4.S21 132-144 MHz	SMD RF coil SUMIDA CS4.S21 132-144 MHz
L002B	45669	SMD HF-Spule SUMIDA CS4.S20Y 169-217 MHz	SMD RF coil SUMIDA CS4.S20Y 169-217 MHz
L002C	45618	SMD HF-Spule SUMIDA CS4.S19 216-260 MHz	SMD RF coil SUMIDA CS.S19 216-260 MHz
L003A	46989	SMD Spule 100nH SUP8 132-144,169-184 MHz	SMD coil 100nH SUP8 132-144,169-184 MHz
L003B	45615	SMD Spule 68nH 183-217 MHz	SMD coil 68nH 183-217 MHz
L003C	45494	SMD Spule 47nH SUP8 216-260 MHz	SMD coil 47nH SUP8 216-260 MHz
L004A	46989	SMD Spule 100nH SUP8 132-144 MHz	SMD coil 100nH SUP8 132-144 MHz

POS	IDENT	BEZEICHNUNG	DESCRIPTION
L004B	45615	SMD Spule 68nH 169-200 MHz	SMD coil 68nH 169-200 MHz
L004C	45494	SMD Spule 47nH SUP8 199-235 MHz	SMD coil 47nH SUP8 199-235 MHz
L004D	45493	SMD Spule 22nH SUP8 234-260 MHz	SMD coil 22nH SUP8 234-260 MHz
L005A	46989	SMD Spule 100nH SUP8 132-144 MHz	SMD coil 100nH SUP8 132-144 MHz
L005B	45615	SMD Spule 68nH 169-217 MHz	SMD coil 68nH 169-217 MHz
L005C	45494	SMD Spule 47nH SUP8 216-260 MHz	SMD coil 47nH SUP8 216-260 MHz
L006A	45495	SMD Spule 150nH SUP8 132-144 MHz	SMD coil 150nH SUP8 132-144 MHz
L006B	46989	SMD Spule 100nH SUP8 169-217 MHz	SMD coil 100nH SUP8 169-217 MHz
L006C	45615	SMD Spule 68nH 216-260 MHz	SMD coil 68nH 216-260 MHz
Q002	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q003	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q004	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q005	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q006	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q007	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q008	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q010	27023	SMD Transistor BFS17 SOT23	SMD transistor BFS17 SOT23
Q011	27023	SMD Transistor BFS17 SOT23	SMD transistor BFS17 SOT23
Q012	27023	SMD Transistor BFS17 SOT23	SMD transistor BFS17 SOT23
Q013	21165	SMD Transistor BC850C SOT23	SMD transistor BC850C SOT23
Q014	27023	SMD Transistor BFS17 SOT23	SMD transistor BFS17 SOT23
Q015	21165	SMD Transistor BC850C SOT23	SMD transistor BC850C SOT23
Q016	27023	SMD Transistor BFS17 SOT23	SMD transistor BFS17 SOT23
Q017	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q018	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q019	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q020	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q021	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q022	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
R001	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R002	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R003	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R004	45137	SMD Widerstand 6k8 5% 0603 (MOQ:50x)	SMD resistor 6k8 5% 0603 (MOQ:50x)
R005	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R006	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R007	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R009	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R010	45143	SMD Widerstand 68k 5% 0603 (MOQ:50x)	SMD resistor 68k 5% 0603 (MOQ:50x)
R011	45221	SMD Widerstand 82k 5% 0603 (MOQ:50x)	SMD resistor 82k 5% 0603 (MOQ:50x)
R012	45137	SMD Widerstand 6k8 5% 0603 (MOQ:50x)	SMD resistor 6k8 5% 0603 (MOQ:50x)
R013	45235	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R014	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R015	45130	SMD Widerstand 470R 5% 0603 (MOQ:50x)	SMD resistor 470R 5% 0603 (MOQ:50x)
R016	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R018	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R020	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R021	45143	SMD Widerstand 68k 5% 0603 (MOQ:50x)	SMD resistor 68k 5% 0603 (MOQ:50x)
R022	45139	SMD Widerstand 15k 5% 0603 (MOQ:50x)	SMD resistor 15k 5% 0603 (MOQ:50x)
R023	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R024	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R025	45139	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R026	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R027	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R028	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R029	45139	SMD Widerstand 15k 5% 0603 (MOQ:50x)	SMD resistor 15k 5% 0603 (MOQ:50x)
R030	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R031	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R032	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R033	45130	SMD Widerstand 470R 5% 0603 (MOQ:50x)	SMD resistor 470R 5% 0603 (MOQ:50x)
R034	45139	SMD Widerstand 15k 5% 0603 (MOQ:50x)	SMD resistor 15k 5% 0603 (MOQ:50x)
R035	45137	SMD Widerstand 6k8 5% 0603 (MOQ:50x)	SMD resistor 6k8 5% 0603 (MOQ:50x)
R036	45139	SMD Widerstand 15k 5% 0603 (MOQ:50x)	SMD resistor 15k 5% 0603 (MOQ:50x)
R037	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R040	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)

POS	IDENT	BEZEICHNUNG	DESCRIPTION
R041	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R042	45221	SMD Widerstand 82k 5% 0603 (MOQ:50x)	SMD resistor 82k 5% 0603 (MOQ:50x)
R043	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R044	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R045	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R046	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R047	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R048	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R049	45143	SMD Widerstand 68k 5% 0603 (MOQ:50x)	SMD resistor 68k 5% 0603 (MOQ:50x)
R050	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R051	45137	SMD Widerstand 6k8 5% 0603 (MOQ:50x)	SMD resistor 6k8 5% 0603 (MOQ:50x)
R052	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R053	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R054	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R056	45003	SMD Trimmwiderstand 50k	SMD resistor, variable 50k
R057	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R060	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R061	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R062	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R063	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R064	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R065	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R066	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R067	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R068	45130	SMD Widerstand 470R 5% 0603 (MOQ:50x)	SMD resistor 470R 5% 0603 (MOQ:50x)
R069	45128	SMD Widerstand 220R 5% 0603 (MOQ:50x)	SMD resistor 220R 5% 0603 (MOQ:50x)
R070	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R071	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R072	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R073	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R074	45126	SMD Widerstand 100R 5% 0603 (MOQ:50x)	SMD resistor 100R 5% 0603 (MOQ:50x)
R075	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R076	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R077	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R078	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R079	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R080	45126	SMD Widerstand 220R 5% 0603 (MOQ:50x)	SMD resistor 220R 5% 0603 (MOQ:50x)
R081	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R082	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R083	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R084	45137	SMD Widerstand 6k8 5% 0603 (MOQ:50x)	SMD resistor 6k8 5% 0603 (MOQ:50x)
R085	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R086	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R087	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R090	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R091	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R092	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R093	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R094	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R095	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R097	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R098	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R099	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R100	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R101	45130	SMD Widerstand 470R 5% 0603 (MOQ:50x)	SMD resistor 470R 5% 0603 (MOQ:50x)
R102	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R103	45137	SMD Widerstand 6k8 5% 0603 (MOQ:50x)	SMD resistor 6k8 5% 0603 (MOQ:50x)
R104	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R105	45135	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R106	45292	SMD Widerstand 3M3 10% 0603 (MOQ:50x)	SMD resistor 3M3 10% 0603 (MOQ:50x)
R107	45292	SMD Widerstand 3M3 10% 0603 (MOQ:50x)	SMD resistor 3M3 10% 0603 (MOQ:50x)
R108	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R109	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R110	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R111	45160	SMD Widerstand 1M 5% 0603 (MOQ:50x)	SMD resistor 1M 5% 0603 (MOQ:50x)
R112	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R113	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R119	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R121	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R121	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R122	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R123	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R124	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)

POS	IDENT	BEZEICHNUNG	DESCRIPTION
R126	45150	SMD Widerstand 1M 5% 0603 (MOQ:50x)	SMD resistor 1M 5% 0603 (MOQ:50x)
R127	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R128	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
S001	45230	Schiebeschalter	Slide switch
S005	45230	Schiebeschalter	Slide switch
S006	45230	Schiebeschalter	Slide switch
U001	41277	SMD IC MC33078D SO8 SUP8	SMD IC MC33078D SO8 SUP8
U002	45093	SMD IC NE572D SOL16	SMD IC NE572D SOL16
U003	40085	IC PROM 1Kx4 N82S129N	IC PROM 1Kx4 N82S129N
U004	45034	SMD IC CMOS NJ8820 MP20	SMD IC CMOS NJ8820 MP20
U005	45508	SMD IC NE701D SO8	SMD IC NE701D SO8
U006	43685	SMD IC RH5RA50AA.T2 SOT89	SMD IC RH5RA50AA.T2 SOT89
Y001	45309	Quarz 6MHz	Crystal 6MHz
ZZ020	52798	Bedienungsanleitung	Instructions for use